Ed Modiano
<edm@demaximis.com>
08/24/2006 10:52 AM

To Christopher Lichens/R9/USEPA/US@EPA
cc chamberlindc@cdm.com, WallinSL@cdm.com, tom.perina@ch2m.com, lparnass@dtsc.ca.gov
bcc
Subject Extraction Well Installation Summary

Chris:

As discussed during our Omega Site project status teleconference call on August 17, 2006, attached for your files is a text, table, figure, and litholog summary of the recently installed extraction wells. In brief, a total of 5 extraction wells were drilled and installed during the period July 10-18, 2006. Development of the extraction wells (bailing, surging, and pumping) was conducted during the period July 18-27, 2006.

Our next step is to pilot test the extraction wells to assist us in finalizing the groundwater EE/CA treatment system design.

We will be providing USEPA a technical memorandum that summarizes the extraction well pilot testing process on Monday August 28, 2006, with the understanding that USEPA verbal comments will be discussed during our August 31, 2006 teleconference call.

If you have any questions or require additional information, please contact me.

Edward Modiano
Project Coordinator
Omega Chemical Site PRP Organized Group
619-991-9074

ExWell Install Summary 8.18.06.pdf

Extraction Well Drilling, Installation, and Development

Five groundwater extraction wells (EW-1 through EW-5) were drilled and installed during the period July 10-18, 2006 using the air-rotary casing hammer (ARCH) drilling method. The drilling contractor selected for the work was WDC, Montclair, California. Following well installation, development was performed with a combination of bailing, surging, and pumping during the period July 18-27, 2006. All wells are located to the north of Washington Boulevard along the western side of Putnam Avenue. Well completion details and locations are presented (Table 1; Figure 1).

Prior to drilling, underground utilities were located using both surface geophysical methods and by conventional notification of Underground Service Alert. As an additional safeguard against damaging buried utilities, the first five to six feet of the 12-inch diameter well borings were also cleared using the air-knife method. Prior to mobilizing equipment to the site, a Traffic Control Plan was prepared and subsequently approved by the City of Whittier. City traffic control personnel were consulted periodically during drilling as changes were made to the traffic control signage and equipment to accommodate changes in location of drilling and support equipment. All cuttings, decontamination fluids, and water produced during development and testing were contained in roll off bins and/or frac tanks.

ARCH drilling was performed by driving a nominal 12-inch casing with threaded joints as a 10 5/8-inch diameter tri-cone air rotary drill bit advanced the boring. During drilling, samples of drill cuttings were collected at a minimum of 5-foot intervals and logged for general lithology by the CDM on-site geologist. Following evaluation of the lithology encountered at each boring, the wells were installed to total depths between 90 to 92 feet below ground surface (bgs). After advancing each boring to its total depth, the drill string and bit were removed from the boring and the well was constructed inside the drive casing.

The six-inch diameter extraction wells were built using 15 feet of stainless steel 0.020-inch slot wire-wrap screen above a 5-foot Schedule 40 PVC sediment sump and end cap. Above the screened interval, blank Schedule 80 PVC riser was installed to approximately six to ten inches bgs. To maximize the wells' ability to draw water from all productive zones encountered, filter pack consisting of No. 2/12 sand (12 x 20 gradation) was installed from the wells' total depth to above the water table. An infiltration barrier of 60 mesh sand was installed to a minimum thickness of two feet above the filter pack. Above the infiltration barrier, a minimum of three feet of granular bentonite seal was installed and hydrated with potable water. After allowing sufficient time for the bentonite seal to hydrate, the wells were grouted to approximately five to six feet bgs with neat Portland cement grout containing 5% bentonite. Approximately four to five feet of granular bentonite were installed above the grout to facilitate modification of the well casing during plumbing to the groundwater treatment system pipelines. Each well was completed with a traffic-rated, flush-mount vault which was set in concrete, with a bolt-down lid. Locking well caps and keyed-alike padlocks were installed at each well after completion. Well completion details are provided in Table 1.

All wells were developed in a similar manner using a combination of bailing, surging, and pumping. The well development consisted of two stages; 1) bailing and surging, and 2) pumping. The first stage combined alternating cycles of bailing and surging to improve hydraulic communication between the well and adjacent aquifer, and to remove fine sediment from the well and adjacent filter pack. Bailing was performed with a 10-foot stainless steel bailer equipped with a check valve, and surging was done using a surge block consisting of a weighted 6-inch rubber diaphragm. The type and approximate amount of sediment removed from the well during development was noted by the CDM on-site geologist. Pumping was performed using a submersible pump set at the bottom of the well, and water was discharged directly to a 21,000 gallon tank at the Site. During the pumping stage of development, each well was pumped at varying rates and also pumped dry and allowed to recover in cycles. At the end of development, well depth measurements verified that there was minimal sediment remaining in the bottom of the wells.

Concurrent with all drilling and well development activities, The Gas Company was performing excavation and gas line maintenance in the vicinity of wells EW-4 and EW-5. Potential hazards posed by this work were incorporated into daily safety meetings as necessary and CDM worked with Gas Company supervisors to minimize delays to drilling and well development, and to mitigate potential safety risks.

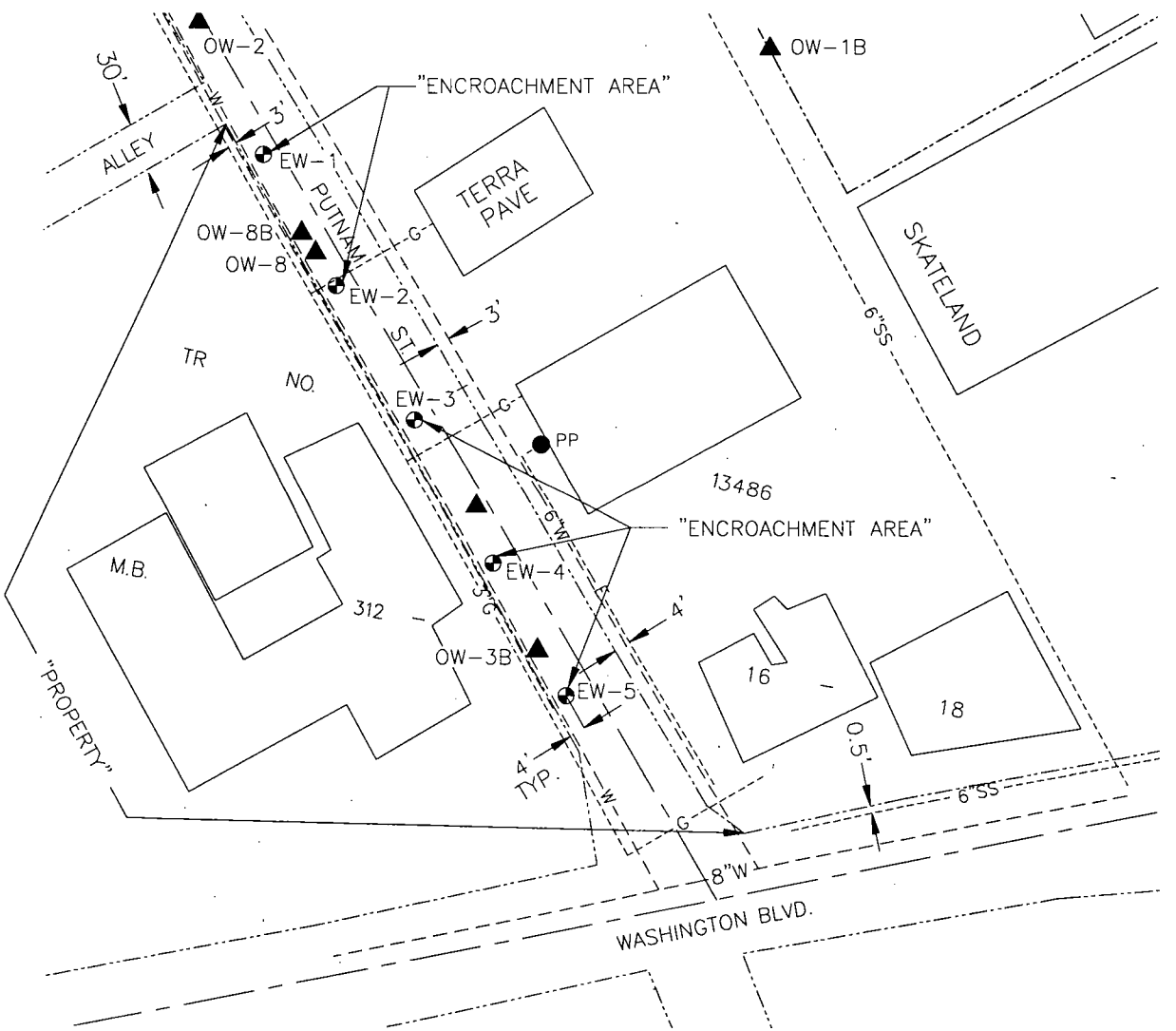
Boring logs and well completion details are provided as Attachment A.

Table 1
Omega Chemical Superfund Site
Well Construction Details

Well No.	Casing Dia. (inches)	Boring diameter (inches)	TD drilled (feet bgs)	Blank Casing Type	Screen Type	Screened Interval (feet bgs)	Opening Size (inch)	Filter Pack Gradation	Filter Pack Interval (feet bgs)	Date Drilled	TD Cased (feet bgs)	Northing (feet)	Easting (feet)	Depth to Groundwater* (feet btoc)	Reference Point Depth (feet bgs)	Reference Point (casing)
EW-1	6	12	92	PVC	SS/WW	72 - 87	0.020	#2/12	60 - 92	Jul-06	92	NA	NA	66.66	0.68	top of PVC
EW-2	6	12	92	PVC	SS/WW	72 - 87	0.020	#2/12	60 - 92	Jul-06	92	NA	NA	65.51	0.67	top of PVC
EW-3	6	12	90	PVC	SS/WW	70 - 85	0.020	#2/12	63.4 - 90	Jul-06	90	NA	NA	64.08	0.92	top of PVC
EW-4	6	12	91	PVC	SS/WW	71 - 86	0.020	#2/12	59 - 91	Jul-06	91	NA	NA	63.11	0.70	top of PVC
EW-5	6	12	90	PVC	SS/WW	70 - 85	0.020	#2/12	58.5 - 90	Jul-06	90	NA	NA	61.55	0.56	top of PVC

bgs - below ground surface
msl - feet above Mean Sea Level
GS - Ground Surface
TD - Total Depth
Dia. - Diameter
SS - stainless steel
WW - continuous wire wrap screen
PVC - polyvinylchloride
btoc - below top of casing (measuring point)

* Depth to groundwater measured July 19, 2006, due to drilling method used and subsequent field observations these pre-development water level data are assumed to represent aquifer conditions.



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LEGEND

EM-1 ⊕	PROPOSED EXTRACTION WELL LOCATION
OW-3 ▲	GROUNDWATER MONITORING WELL LOCATION
▭	SITE BOUNDARY
●PP	EXISTING POWER POLE
--SS--	EXISTING SANITARY SEWER LINE
--W--	EXISTING WATER LINE
--G--	EXISTING GAS LINE
--E--	EXISTING ELECTRIC LINE

EXTRACTION WELL DIMENSIONS	
WELL NO.	DISTANCE FROM ALLEY (12519A PUTNAM ST.) TO EXTRACTION WELL
EW-1	8 FEET
EW-2	85 FEET
EW-3	167 FEET
EW-4	239 FEET
EW-5	330 FEET

REV NO.	DATE	DRWN	CHKD	REMARKS

DESIGNED BY: F. JORGENSEN
DRAWN BY: B. BILDERBACK
SHEET CHK'D BY: F. JORGENSEN
CROSS CHK'D BY:
APPROVED BY:
DATE: JUNE 2006

WARNING
0 1/2 1"
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE

CDM Camp Dresser & McKee Inc.
18581 Teller Avenue, Suite 200
IRVINE, California 92612
Tel: (949) 752-5452
Fax: (949) 752-1307

FOR EXCAVATION PERMIT ONLY

OMEGA CHEMICAL SUPERFUND SITE

12504/12512 EAST WHITTIER BOULEVARD
WHITTIER, CALIFORNIA

NOT FOR CONSTRUCTION

REMOVAL ACTION PRELIMINARY DESIGN

EXHIBIT "A"
PROPOSED EXTRACTION WELL LOCATIONS

SHEET

SHEET ID

C:\O-cad projects\10500-Omega\37240\ OMEGA-SF-EW02 06/15/06 07:38 Bilderbacke XREFS: 37240-MF-C01_OW3C

ATTACHMENT A

EXTRACTION WELL LITHOLOGS

CDM
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BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 10500-53426
PROJECT NAME Omega Chemical
LOCATION Putnam St.
DRILLING METHOD Air Rotary Casing Hammer
SAMPLING METHOD Cuttings
GROUND SURFACE ELEVATION (FT MSL) NA
TOP OF CASING ELEVATION (FT MSL) NA
LOGGED BY Andy Horn
REMARKS Key #3232

BORING/WELL NUMBER EW-1
DATE DRILLED 7/13/06
CASING TYPE/DIAMETER Sch 80, PVC / 6"
SCREEN TYPE/SLOT 6" Stainless Steel Wire Wrap / 0.020"
GRAVEL PACK TYPE #2/12
GROUT TYPE/QUANTITY Portland Cement 5% Bentonite
STATIC WATER LEVEL (FT BELOW TOC) 66.66
GROUND WATER ELEVATION (FT MSL)

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
					0			6" Concrete	0.5
						CL		CLAY: brown (7.5YR4/2); silty, slightly moist, moderate plasticity.	
					5				5.0
								SILT: brown (7.5YR4/2); clayey, slightly moist, low to moderate plasticity.	
					10				
					15	ML			
					20				
					25				25.0
								CLAY: brown (7.5YR4/2); silty, slightly moist, low to moderate plasticity.	
					30	CL			
					35				35.0

WELL DIAGRAM:
- Locking Water-Tight Cap
- Concrete (1-1.5 ft bgs).
- Bentonite Chips (1.5-6 ft bgs).
- 6", Sch 80, PVC Riser (0.68-72 ft bgs).
- Portland Cement w/ 5% Bentonite Grout (6-72 ft bgs).

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BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 10500-53426 **BORING/WELL NUMBER** EW-1
PROJECT NAME Omega Chemical **DATE DRILLED** 7/13/06

Continued from Previous Page

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
					40			CLAY: brown (7.5YR5/4); silty and trace sand, slightly moist, moderate plasticity.		6", Sch 80, PVC Riser (0.68-72 ft bgs).
					45	CL				Portland Cement w/ 5% Bentonite Grout (6-72 ft bgs).
					50					
					55	ML		SILT: brown (7.5YR5/4); with some clay, slightly moist, low plasticity,	55.0	Bentonite Chips (53.5-57 ft bgs).
					60				60.0	#60 Mesh Sand (57-60 ft bgs).
					65	SP		SAND: light brown (7.5YR6/4); poorly graded, fine, with silt, slightly moist.		#2/12 Filter Pack (60-92 ft bgs).
					70					6", 20-slot, SS Wire Wrap Screen (72-87 ft bgs).
					75					

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BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 10500-53426 **BORING/WELL NUMBER** EW-1

PROJECT NAME Omega Chemical **DATE DRILLED** 7/13/06

Continued from Previous Page

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
									77.0	
						CL		CLAY: brown (7.5YR5/4); silty with trace very fine sandy, moist, moderate plasticity, water added to boring,		
					80				80.0	6", 20-slot, SS Wire Wrap Screen (72-87 ft bgs).
						SP		SAND: brown (7.5YR5/4); with gravel, silt and clay, appears to be clayey matrix clasts are ~0.5"-1" at most.		
					85					#2/12 Filter Pack (60-92 ft bgs).
									87.0	
						CL		CLAY: light brown (7.5YR4/4); silty sandy, moist, moderate plasticity.		6", Sch 40, PVC Sump (87-92 ft bgs).
					90				90.0	
						GP		GRAVEL: light brown (7.5YR6/4); with coarse sand, silt and clay.		
									92.0	End Cap (92 ft bgs).
					95					
					100					
					105					
					110					
					115					

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BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 10500-53426
PROJECT NAME Omega Chemical
LOCATION Putnam St.
DRILLING METHOD Air Rotary Casing Hammer
SAMPLING METHOD Cuttings
GROUND SURFACE ELEVATION (FT MSL) NA
TOP OF CASING ELEVATION (FT MSL) NA
LOGGED BY Andy Horn
REMARKS Key #3232

BORING/WELL NUMBER EW-2
DATE DRILLED 7/13/06
CASING TYPE/DIAMETER Sch 80, PVC / 6"
SCREEN TYPE/SLOT 6" Stainless Steel Wire Wrap / 0.020"
GRAVEL PACK TYPE #2/12
GROUT TYPE/QUANTITY Portland Cement 5% Bentonite
STATIC WATER LEVEL (FT BELOW TOC) 65.51
GROUND WATER ELEVATION (FT MSL)

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
					0			6" Concrete.	0.5
						CL		CLAY: brown (7.5YR4/2); with silt, slightly moist firm, moderate plasticity.	
					5				5.0
						ML		SILT: brown (7.5YR5/4); with trace clay, slightly moist, non plastic	
					10				
					15				15.0
						CL		CLAY: brown (7.5YR4/4); silty, with trace sand, moderate plasticity,	
					20				
					25				
					30				
					35				

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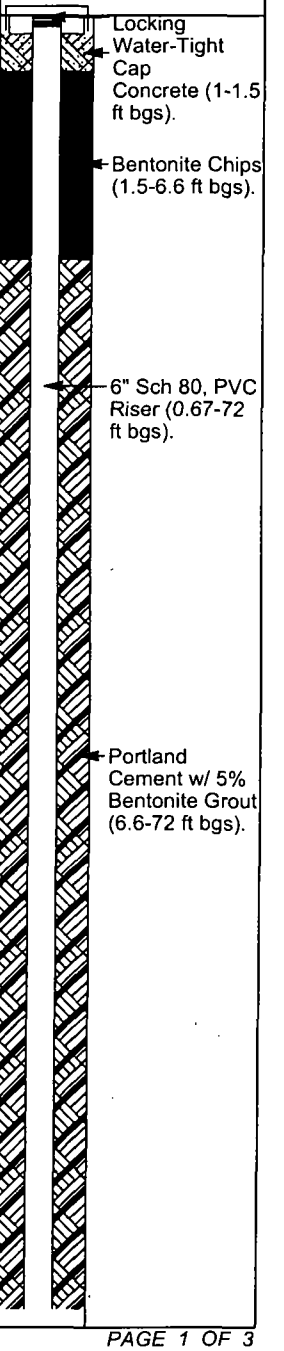
WELL DIAGRAM



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BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 10500-53426 **BORING/WELL NUMBER** EW-2

PROJECT NAME Omega Chemical **DATE DRILLED** 7/13/06

Continued from Previous Page

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
					40					6" Sch 80, PVC Riser (0.67-72 ft bgs).
					45	ML		SILT: brown (7.5YR4/4); with clay, slightly moist, low plasticity.	45.0	Portland Cement w/ 5% Bentonite Grout (6.6-72 ft bgs).
					50					
					55			SILT: brown (7.5YR5/4); with very fine sand, trace clay, slightly moist, low plasticity.		Bentonite Chips (54-57.5 ft bgs).
					60	SP		SAND: light brown (7.5YR6/4); very fine, dry, non-plastic, poorly graded.	60.0	#60 Mesh Sand (60-92 ft bgs).
					65					#2/12 Filter Pack (57.5-92 ft bgs).
					70			SAND: light brown (7.5YR6/4); fine to medium, non-plastic.		6", 20-slot, SS Wire Wrap Screen (72-87).
					75					

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BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 10500-53426 **BORING/WELL NUMBER** EW-2

PROJECT NAME Omega Chemical **DATE DRILLED** 7/13/06

Continued from Previous Page

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
								SAND: light brown (7.5YR6/4); medium to coarse, moist, non-plastic.	78.0	
					80	ML		SILT: light brown (7.5YR6/4); sandy, water added to boring.	83.0	6", 20-slot, SS Wire Wrap Screen (72-87).
					85	GP		Driller reports cobble at 83'. GRAVEL: with silt and sand.	87.0	
					90	CL		Driller reports smooth drilling silt/clay CLAY: brown (7.5YR4/4); silty with sand, trace gravel, wet, moderate plasticity.	92.0	6" Sch 40, PVC Sump (87-92 ft bgs). #2/12 Filter Pack (57.5-92 ft bgs). End Cap (92 ft bgs).
					95					
					100					
					105					
					110					
					115					

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BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 10500-53426
PROJECT NAME Omega Chemical
LOCATION Putnam St.
DRILLING METHOD Air Rotary Casing Hammer
SAMPLING METHOD Cuttings
GROUND SURFACE ELEVATION (FT MSL) NA
TOP OF CASING ELEVATION (FT MSL) NA
LOGGED BY Andy Horn
REMARKS Key #3232

BORING/WELL NUMBER EW-3
DATE DRILLED 7/11/06
CASING TYPE/DIAMETER Sch 80, PVC / 6"
SCREEN TYPE/SLOT 6" Stainless Steel Wire Wrap / 0.020"
GRAVEL PACK TYPE #2/12
GROUT TYPE/QUANTITY Portland Cement 5% Bentonite
STATIC WATER LEVEL (FT BELOW TOC) 64.08
GROUND WATER ELEVATION (FT MSL)

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
					0			Concrete 6" thick	0.5
						CL		CLAY: dark brown (7.5YR3/2); with traces of caliche nodules ~0.5mm, firm, moderate plasticity, moist.	2.5
								SILT: brown (7.5YR4/2); sandy, slightly moist, low plasticity.	
					5	ML		SILT: brown (7.5YR4/2); clayey, with sand.	
									8.0
						GP		COBBLE: *rock crystalline*	
					10				10.0
						ML		SILT: brown (7.5YR4/2); clayey, trace sand, trace rock clippings, dry, non-plastic.	
					15				15.0
								CLAY: brown (7.5YR6/4); silty, sandy w/ gravel, moist, *medium to low plasticity.*	
					20				
					25				
					30	CL			
					35				

WELL DIAGRAM
- Locking Water-Tight Cap
- Concrete (1-1.5 ft bgs).
- Bentonite Chips (1.5-6.5 ft bgs).
- 6" Sch 80, PVC Riser (0.92-70 ft bgs).
- Portland Cement w/ 5% Bentonite Grout (6.5-70 ft bgs).

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BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 10500-53426 **BORING/WELL NUMBER** EW-3

PROJECT NAME Omega Chemical **DATE DRILLED** 7/11/06

Continued from Previous Page

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
					40				
					45				
						ML		SILT: brown (7.5YR5/6); sandy, dry, non-plasticity.	47.0
					50				50.0
						SP		SAND: light brown (7.5YR5/4); poorly sorted, with trace silt, dry, non-plastic, angular to subrounded.	
					55				
					60				
					65	GP		GRAVEL: brown (7.5YR5/4); with clay, silt, sand, slightly moist, low plasticity.	65.0
					70	ML		SILT: light brown (7.5YR6/4); sandy trace clay, moist, low plasticity.	70.0
					75				75.0

Continued Next Page

WELL DIAGRAM

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BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 10500-53426 **BORING/WELL NUMBER** EW-3

PROJECT NAME Omega Chemical **DATE DRILLED** 7/11/06

Continued from Previous Page

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
						GP		GRAVEL: light brown (7.5YR6/4); sandy, silty, with trace clay, wet, non-plastic, angular to subangular.		
									78.0	
						ML		SILT: light brown (7.5YR6/4); sandy.		
					80				80.0	
						SP		SAND: brown (7.5YR5/4); silty and clay, trace fine gravel, wet, angular grains, non-plastic, water added to boring at 80'.		
					85				85.0	
						CL		CLAY: light brown (7.5YR6/4); silty, sandy, with trace gravel, wet, low plasticity.		
					90				90.0	
								CLAY: light brown (7.5YR6/4); silty, sandy, with trace gravel, wet, medium plasticity.		
					95					
					100					
					105					
					110					
					115					

#2/12 Filter Pack (63.4-90 ft bgs).

6", 20-slot, SS Wire Wrap Screen (70-85 ft bgs).

6" Sch 40, PVC Sump (85-90 ft bgs).

End Cap (90 ft bgs).

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BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 10500-53426
PROJECT NAME Omega Chemical
LOCATION Putnam St.
DRILLING METHOD Air Rotary Casing Hammer
SAMPLING METHOD Cuttings
GROUND SURFACE ELEVATION (FT MSL) NA
TOP OF CASING ELEVATION (FT MSL) NA
LOGGED BY Andy Horn
REMARKS Key #3232

BORING/WELL NUMBER EW-4
DATE DRILLED 7/17/06
CASING TYPE/DIAMETER Sch 80, PVC / 6"
SCREEN TYPE/SLOT 6" Stainless Steel Wire Wrap / 0.020"
GRAVEL PACK TYPE #2/12
GROUT TYPE/QUANTITY Portland Cement 5% Bentonite
STATIC WATER LEVEL (FT BELOW TOC) 63.11
GROUND WATER ELEVATION (FT MSL)

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
					0			6" Concrete	0.5
								SILT: dark brown (7.5YR5/4); clayey, moderate plasticity, slightly moist.	
					5				
					10				
					15			Trace gravel.	
						ML			
					20			Trace sand.	
					25			Trace sand.	
					30				
					35				35.0

Continued Next Page

WELL DIAGRAM

- Locking Water-Tight Cap. Concrete (1-1.5 ft bgs).
- Bentonite Chips (1.5-5.4 ft bgs).
- 6" Sch 80 PVC Riser (0.70-70.8 ft bgs).
- Portland Cement w/ 5% Benonite Grout (5.4-70.8 ft bgs).

NEWGINT OMEGA.GPJ NEWGINT.GDT 8/16/06

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BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 10500-53426 **BORING/WELL NUMBER** EW-4
PROJECT NAME Omega Chemical **DATE DRILLED** 7/17/06

Continued from Previous Page

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
					40			Water added to boring.		6" Sch 80 PVC Riser (0.70-70.8 ft bgs).
					45	ML		Trace sand.		Portland Cement w/ 5% Benonite Grout (5.4-70.8 ft bgs).
					50			Trace sand.		
					55			SILT: brown (7.5YR4/6); sandy, fine sand, no plasticity determination, wet.	55.0	Bentonite Chips (52.5-56 ft bgs).
					60	SP		SAND: brown (7.5YR5/4); fine to medium, silty, wet, smooth.		#60 Mesh Sand (56-59 ft bgs).
					65			SILT: brown (7.5YR5/6); with medium to fine sand, wet.	65.0	#2/12 Filter Pack (59-90.8 ft bgs).
					70	ML				6", 20-slot, SS Wire Wrap Screen (70.8-85.8 ft bgs).
					75				75.0	

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NEWGINT OMEGA.GPJ NEWGINT.GDT 8/16/06

CDM
18581 Teller Avenue, Suite 200
Irvine, CA 92612
(949) 752-5452
(949) 752-1307 (FAX)

BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 10500-53426 **BORING/WELL NUMBER** EW-4

PROJECT NAME Omega Chemical **DATE DRILLED** 7/17/06

Continued from Previous Page

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
					80	ML		SILT: brown (7.5YR5/6); with medium to fine sand, no plasticity determination, wet.	80.0	#2/12 Filter Pack (59-90.8 ft bgs).
					85	CL		CLAY: brown (7.5YR4/4); silty, medium to high plasticity, moist.		6", 20-slot, SS Wire Wrap Screen (70.8-85.8 ft bgs).
					90	ML		SILT: brown (7.5YR5/4); with very fine sand, non-plastic, wet.	90.0 90.8	6" Sch 40 PVC Sump (85.8-90.8 ft bgs). End Cap (90.8 ft bgs).
					95					
					100					
					105					
					110					
					115					

NEWGINT OMEGA.GPJ NEWGINT.GDT 8/16/06

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BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 10500-53426
PROJECT NAME Omega Chemical
LOCATION Putnam St.
DRILLING METHOD Air Rotary Casing Hammer
SAMPLING METHOD Cuttings
GROUND SURFACE ELEVATION (FT MSL) NA
TOP OF CASING ELEVATION (FT MSL) NA
LOGGED BY Andy Horn
REMARKS Key #3232

BORING/WELL NUMBER EW-5
DATE DRILLED 7/17/06
CASING TYPE/DIAMETER Sch 80, PVC / 6"
SCREEN TYPE/SLOT 6" Stainless Steel Wire Wrap / 0.020"
GRAVEL PACK TYPE #2/12
GROUT TYPE/QUANTITY Portland Cement 5% Bentonite
STATIC WATER LEVEL (FT BELOW TOC) 61.55
GROUND WATER ELEVATION (FT MSL)

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
					0			6" Concrete	0.5
						ML		SILT: brown (7.5YR4/4); clayey, moderate plasticity, slightly moist.	
					5				
					10			Trace gravel.	
					15			Trace fine gravel.	
					20				
					25			SILT: brown (7.5YR4/4); sandy, with clay, moderate plasticity, slightly moist.	27.0
						SP		SAND: strong brown (7.5YR4/6); with silt and gravel, sand is fine to coarse, non-plastic, slightly moist.	30.0
					30			SILT: brown (7.5YR4/4); with clay and gravel, moderate plasticity, slightly moist.	
					35				

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WELL DIAGRAM

- *Locking* Water-Tight Cap Concrete (1-1.5 ft bgs).
- Bentonite Chips (1.5-4.5 ft bgs).
- 6" Sch 80 PVC Riser (0.56-70 ft bgs).
- Portland Cement w/ 5% Bentonite Grout (4.5-70 ft bgs).

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BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 10500-53426 **BORING/WELL NUMBER** EW-5

PROJECT NAME Omega Chemical **DATE DRILLED** 7/17/06

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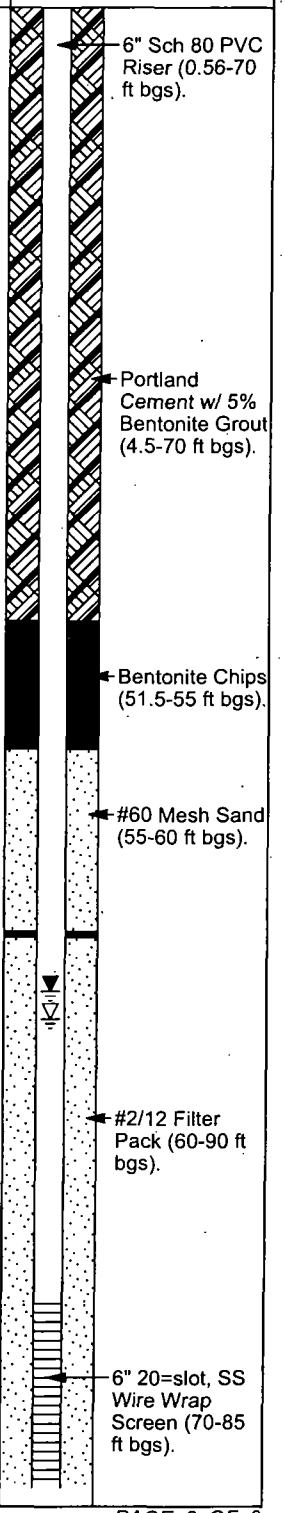
PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH
					40	ML		SILT: brown (7.5YR4/2); with clay, moderate plasticity, slightly moist.	
					45			SILT: brown (7.5YR4/4); with clay and very fine sand, moderate to low plasticity, slightly moist.	
					50				
					55				
					60	SP		SAND: strong brown (7.5YR5/6); fine to medium, with silt, non-plastic, slightly moist.	60.0
					65				
					70	ML		SILT: brown (7.5YR5/4); clayey, with medium sand, trace gravel, moderate to high plasticity, moist.	70.0
					75				75.0



WELL DIAGRAM

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NEWGINT OMEGA.GPJ NEWGINT.GDT 8/16/06

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BORING/WELL CONSTRUCTION LOG

PROJECT NUMBER 10500-53426 **BORING/WELL NUMBER** EW-5

PROJECT NAME Omega Chemical **DATE DRILLED** 7/17/06

Continued from Previous Page

PID (ppm)	BLOW COUNTS	RECOVERY (inches)	SAMPLE ID.	EXTENT	DEPTH (ft. bgs)	U.S.C.S.	GRAPHIC LOG	LITHOLOGIC DESCRIPTION	CONTACT DEPTH	WELL DIAGRAM
								CLAY: brown (7.5YR5/4); silty, with fine to medium sand, moderate plasticity, moist.		#2/12 Filter Pack (60-90 ft bgs).
					80	CL		CLAY: strong brown (7.5YR5/6); silty, with fine sand and gravel, medium to high plasticity, moist.		6" 20=slot, SS Wire Wrap Screen (70-85 ft bgs).
					85			Water added to boring. CLAY: strong brown (7.5YR5/6); silty, with very fine sand, trace gravel, high plasticity, moist.		6" Sch 40, PVC Sump (85-90 ft bgs).
					90	CL		CLAY: strong brown (7.5YR5/8); silty, with very fine to medium sand, trace gravel, wet.	90.0 90.0	End Cap (90 ft bgs).
					95					
					100					
					105					
					110					
					115					

NEWGINT OMEGA.GPJ NEWGINT.GDT 8/16/06